

FIG. 1

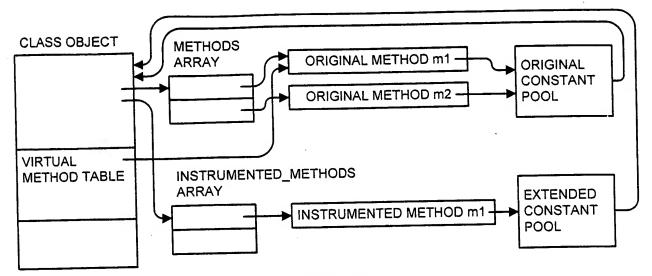


FIG. 2

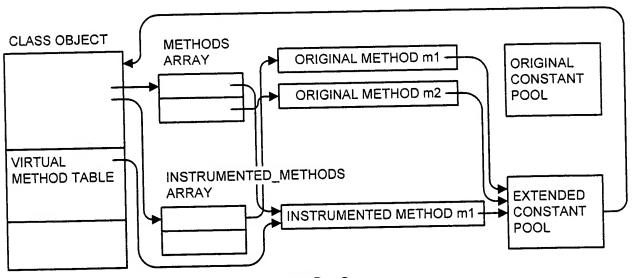


FIG. 3

```
// Push the simulated stack pointer for this thread
// Set the simulated stack method invocation
                                                                                                                                                                                                                                                           // Entered root method from outiside this call graph
                                                        // Avoid recursive instrumentation invocation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                methodExit()
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 call returns
                                                                                                                                                                                                                                                                                                                                                                                                                                                      // ... Perform other thread creation-related operations. Set the stack pointer. // ... Obtain the timestamp and record the "method entry" event ti.inProfilerRuntimeMethod = false;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            current time
                                                                                                                                                                                                                                                                                              ti.inProfilerRuntimeMethod = true;
if (ti == null) { // This thread never entered this call graph before
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             taken
                  // Get record for current thread
                                                                                                                                                                                            \ensuremath{//} ... Obtain current time and record the "method entry" event
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           methodExit()
                                                                                                                                                                                                                                                                                                                                                                   // ... Record the new profiled thread creation event
public static void methodEntry(short methodId) {
                                                                            if (ti.inProfilerRuntimeMethod) return;
                                                                                                                                                                                                                                                                            else if (methodId == rootMethodId) {
                                                                                                                                                                                                                                                      ti.inProfilingRuntimeMethod = false;
                                                                                                                                                   ti.stack[ti.stackDepth] = methodId;
                                                                                                                                                                                                                                                                                                                                                 = ThreadInfo.newThreadInfo();
                                                                                                  ti.inProfilerRuntimeMethod = true;
                                                    if (ti != null &  ti.inCallGraph)
                             ThreadInfo ti = getThreadInfo();
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      methodEntry()
                                                                                                                                                                                                                                                                                                                                                                                                                                       ti.inCallGraph = true;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               current time
                                                                                                                                     ti.stackDepth++;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                taken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               methodEntry()
```

time

 $\frac{7}{2}$

 χ_2

f exact

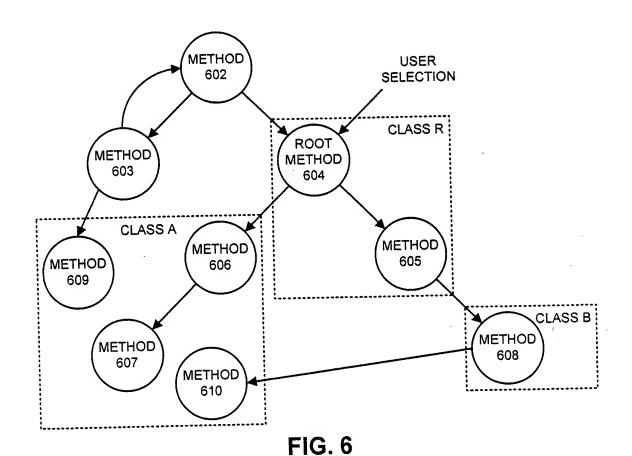
7

×

call starts

call returns

call starts



CLASS NAME 702 LOADED FLAG 704

CLASS X

METHOD TABLE 706

m1()

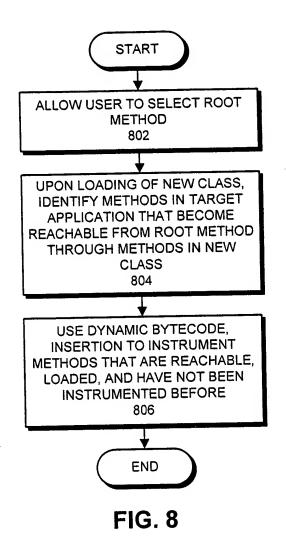
m2()

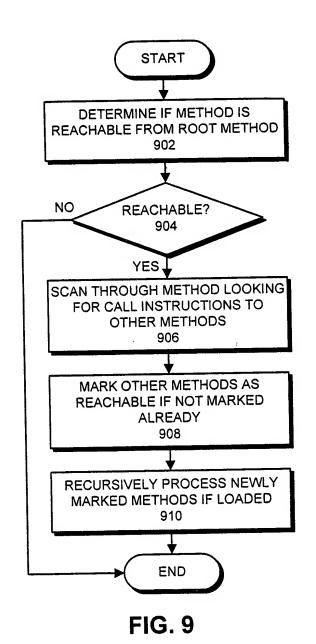
m3()

REACHABLE FLAG 712

INSTRUMENTED FLAG 710

FIG. 7





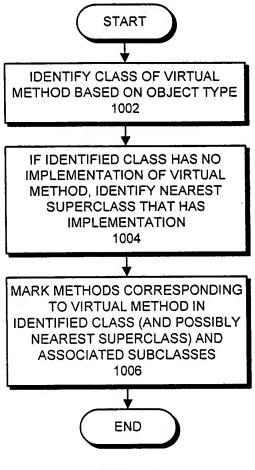


FIG. 10